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ABSTRACT

In the investigation of flood risk management in four New York State counties damaged by Tropical Storm Agnes, 71 persons who had engaged in flood management and related planning were interviewed. Results indicated that the organizations involved in planning in the area were not well connected with other such actors. Regarding four measures of planning comprehensiveness the actors' mean score was 5.479 on a scale of 10. The correlation between area-wideness and comprehensiveness for all actors was strong but not consistent. The study led to a typology of planning actors. Type 1 organizations, with responsibility for decision making or policy implementation but not for planning, scored below the mean on both the comprehensive and area-wide dimensions. Type 2 organizations, with planning responsibilities carried out largely by professional staff, scored below the mean on the area-wide dimension but above the mean on comprehensiveness. Type 3 organizations, with limited scope of planning activities, scored below the mean on comprehensiveness but above the mean on the area-wide dimension. Type 4 organizations, with professionally trained staff and/or an active commitment to the efficacy of planning, scored above the mean on both measures. (JR)

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MAPPING COMMUNITY PLANNING AND DECISION-MAKING

by

Joan Wright*

One of the problems faced by practitioners responsible for instituting change at the community level is how to assess the community's capability to engage in the planning and learning necessarily involved. These practitioners, who may be known as planners, community development specialists, coordinators, or various other titles, are in effect performing an adult educational function at the community level. They may be concerned with such widely varied efforts as Health Systems Agencies, (HSA's), Comprehensive Education and Training Act (CETA) projects, human service integration projects, or river basin water resource planning. In each case the development of strategy would be aided if these educators had a method for 1) ascertaining the community's ability to comprehend the complexities and implications of the impetus to change, and 2) mapping existing communication networks in the community. This paper describes a methodology developed for that purpose.

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This report is based on a study undertaken as part of "Project Agnes", a multi-disciplinary investigation of flood risk management funded by the U.S. Economic Development Administration; U.S. Office of Water Resources Research; the N.Y.S. Agricultural Experiment Station; the N.Y.S. Cooperative Extension Service; and several of the Colleges of Cornell University.

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In June of 1972 Tropical Storm Agnes left its mark on many of the northeast and middle Atlantic states. The southern tier of New York State, particularly the Chemung River Basin and part of the Eastern Susquehanna Basin, was a part of the federally-declared disaster area. In the wake of the flooding that in New York State alone took 28 lives, left thousands homeless, and destroyed millions of dollars in property, communities began the long recovery process, including planning to prevent a reoccurrence of such destruction.

A time of disaster is often an opportunity for the promulgation and development of new ideas and ways of work. Communities which become accustomed to the ways things have always been done find that such mechanisms are not capable of handling drastic change. The loss of a stable state is accompanied by a necessity for adaptation, and consequent willingness to invent and use new means of performing essential functions in the community on a trial and error basis.

Whether a community retains and institutionalizes relationships developed during a disaster or reverts to its previous ways of operating, the disaster itself represents an occasion for community learning that cannot be ignored. In the instance of Agnes, that learning included the recognition of a need for planning that would

- help to prevent a reoccurrence of the disaster;
- develop inter-organizational relationships more capable of coping adequately with disaster or other community-wide turbulence in the environment; and
- potentially be able to fulfill eligibility requirements for federal flood insurance protection.

The research reported in this paper was undertaken as a part of a larger multi-disciplinary investigation of flood risk management following Tropical Storm Agnes. The study was exploratory, designed to describe the planning and decision-making network in a four county area, some 18 months after Agnes, and to assess its capability

to handle flood management planning (FMP). A survey methodology was used with in-depth interviews of key informants, supplemented by observation of regional and national conferences andoverview of the flood management planning literature.

Planning, in this study, was conceptualized as a learning process, at the community level, in which organizations played active roles through the relationships they developed with each other. Planning as a societal learning process is described in some detail by Michaels.[1] He argues that anticipation of and adaptation to change require the acceptance of long-range social planning as a learning process. Such a learning process is a kind of societal learning to learn--the development of a learning system "capable of bringing about [its] own continuing transformation".[2]

It is no accident that planning and learning are seen as interrelated activities. Authorities in a variety of areas, recognizing that no activity can occur without effect on a number of other activities,[3] are calling for holistic, ecological approaches to problem-solving. The importance of learning is occasioned by the recognition of the complexity and interrelatedness of decision situations, actors, constraints, and anticipated events. The utilization of planning specialists has heightened decision-makers' appreciation of the interdependencies and complexities involved in their work. As decision-makers become more aware of the complexities involved in public decisions, professional planning expertise is increasingly called upon to provide greater rationality to decision-making.

The mutually reinforcing nature of planning and learning is captured, at least in part, by a rhetoric emphasizing "area-wide comprehensive planning".* An ideal type of planning, it is argued, is a system for learning, and as such should be limited neither to a particular level of decision-making nor to a particular geographic area. In this respect it may be defined as area-wide. An ideal planning/learning system should also be comprehensive--open to perceiving the dimensions of

*As noted by Bauer,[4] flood management programs have fallen far short of realizing their potential in solving flood problems due to their geographically limited and single purpose approach. Although comprehensive area-wide planning may not be sufficient to accomplish effective flood management, according to Bauer this is a necessary condition for achieving flood management objectives.

a particular phenomenon as complex, interrelated, interdependent aspects of a whole. This paper describes the definition developed of area-wide and comprehensive planning in relation to flood risk management, and explores the implications of the ideal for planning as learning. The influence of organizational characteristics on planning/learning is examined, and conclusions as to the efficacy of the methodology and hypotheses for future research are offered.

The Area-wide Dimension of a Planning/Learning Ideal

Flood management is a matter for area-wide consideration in two ways. First, it involves multiple layers of decision-makers, each perceiving a particularly salient set of problems, solutions and potential consequences. The perceptions of actors at one level are not necessarily congruent with the perceptions of actors at other levels of decision-making. The state, for example, may be highly aware of hazards to conservation of the state's natural resources; the soil and water conservation district may be concerned with conservation of productive agricultural lands; the township may be primarily focused on conservation of the locality's tax base. If the concerns of each level are to be included in flood management planning, it must be area-wide to be comprehensive.

A second justification for considering flood management to be an area-wide concern is based on the physical properties of water. Flood water, like water in general, seldom if ever limits its effects to a politically bounded geographic area. (In fact, since the principal streams of a watershed often form the boundaries of political units, a flood that affects such a stream necessarily affects two or more political units.) Any part of the total geographic area encompassed in a watershed may be involved in measures to reduce the incidence or impacts of flooding for the total area. In this geographic sense, then, planning for flood management is an area-wide endeavor.

The mapping of the planning network in the four counties of the study area required, first, an identification of the organizations involved in planning. Two means of identifying agencies were used, somewhat analogous to the positional and reputational methods of locating community influentials.[5] In the first case organizations known or assumed to be involved in planning by virtue of their title (e.g. County Planning Department), activities (e.g. community resource development is a program activity of Cooperative Extension), or function (e.g. the survival of business and industry requires an adaptation--i.e. planning--function) were listed. Representation of physical, social, and economic planning foci was sought, with special search for those organizations whose mandate specifically included one or more aspects of flood management and related planning.* Other actors were identified during interviews with executives of agencies included on the positional list described above. These additional organizations were reported to be involved in planning generally and/or in flood management planning specifically. The final number of actors interviewed was 71.

All respondents, the chief executives of the identified agencies, were asked with what other groups, either locally or at state and national levels, they worked in planning. They were also asked with what other organizations they had been or were likely to be involved in flood management planning. Each relationship with another agency reported by a respondent was considered to be a linkage, with no discrimination as to the nature of the relationship (e.g. for approval, information, technical assistance) or its intensity. In most cases respondents found it difficult to recall other actors they interacted with; interviewers were instructed to pursue references to other agencies throughout the interview in order to get as complete an inventory of reported relationships as possible.

*Sources for this list included staff and reference library of the Office of Water Resources and Environmental Quality at Cornell University; data on human service recources accumulated in the Department of Community Service Education, New York State College of Human Ecology at Cornell University; field staff of the New York State Department of Environmental Conservation; and staff of the New York State Soil and Water Conservation District.

Using Warren's differentiation of horizontal and vertical linkages,[6] a distinction was made between relationships reported with other organizations inside the county (i.e. whose jurisdiction is specifically directed toward the purposes of the county or smaller units within the county) and those reported with organizations outside the county (i.e. whose jurisdiction is directed toward the purposes of a larger area). Intra-county relationships were considered the horizontal linkages; extra-county relationships the vertical linkages.

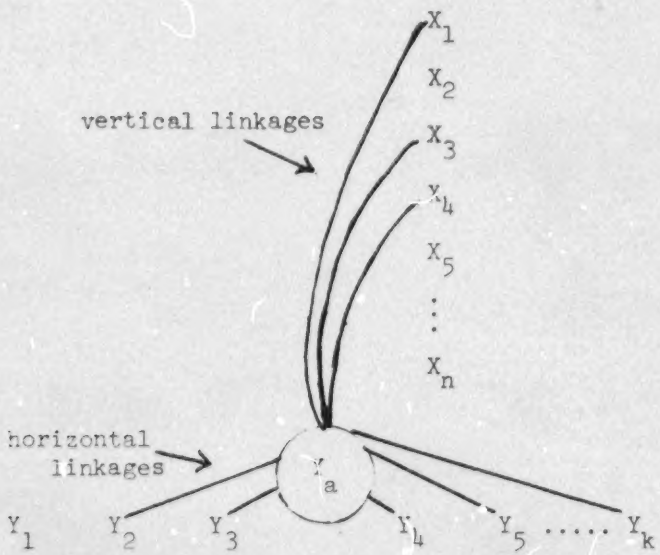
The definition of area-wideness encompasses both a geographic and a political connotation. The network of relationships reported by actors within a county represents both aspects of area-wide planning. The vertical linkages are the direct relationships with decision-making at other levels and with other geographic areas. To be area-wide, however, the planning network does not necessarily require only direct linkages. It is entirely possible that a limited number of actors engaged in direct extra-county relationships may, if linked horizontally to other actors within the county, provide indirect area-wide linkages. This is one reason that the horizontal dimension of the planning network becomes important.

In addition, the horizontal dimension indicates, albeit to a limited extent, something about the comprehensiveness of planning and learning. If one assumes that the total list of reported relationships is necessarily comprehensive of a wide scope of planning interests, expertise, and activities, the extent to which there are intra-county relationships among the actors reveals the potential capacity of the system for sharing those interests, activities, and expertise--in short, for learning. Ultimately this capacity for communication affects the capability of any one actor to comprehend a greater proportion of the total, or to think more holistically, more ecologically.

The indicator of area-wide planning that was used in this study was the actor's report of planning interaction with other agencies either within the county (horizontal linkages) or outside the county (vertical linkages). Two

measures of each kind of linkage were made for each actor; one was the number of such linkages reported, and the other was the proportion of all linkages identified by planning actors in one county that were used by that respondent. Combined, these two dimensions describe the coverage and carrying capacity of inter-level and intra-level communication channels (Figure 1) and represent a map of inter-organizational planning/learning relationships for each respondent.

Figure 1. Representation of the Area-wide Dimension of Planning for One Planning Actor



X = extra-local organization with whom linkage was reported by one or more local planning actors

Y = local organization with whom linkage was reported by one or more local planning actors

Y_a = local planning actor interviewed in study

When these communication linkages are summed for all planning actors within each county, a topology for area-wide planning may be envisioned. The mean score and range for the number and proportion of vertical and horizontal linkages are indicated in Table 1.

It was anticipated that there would be some relationship between either measure of vertical linkages and the corresponding measure of horizontal linkages. Analysis of the relationship between the two yielded a correlation coefficient of .288 when the number of linkages was examined; and of .128 when the ratios were used.[7] It

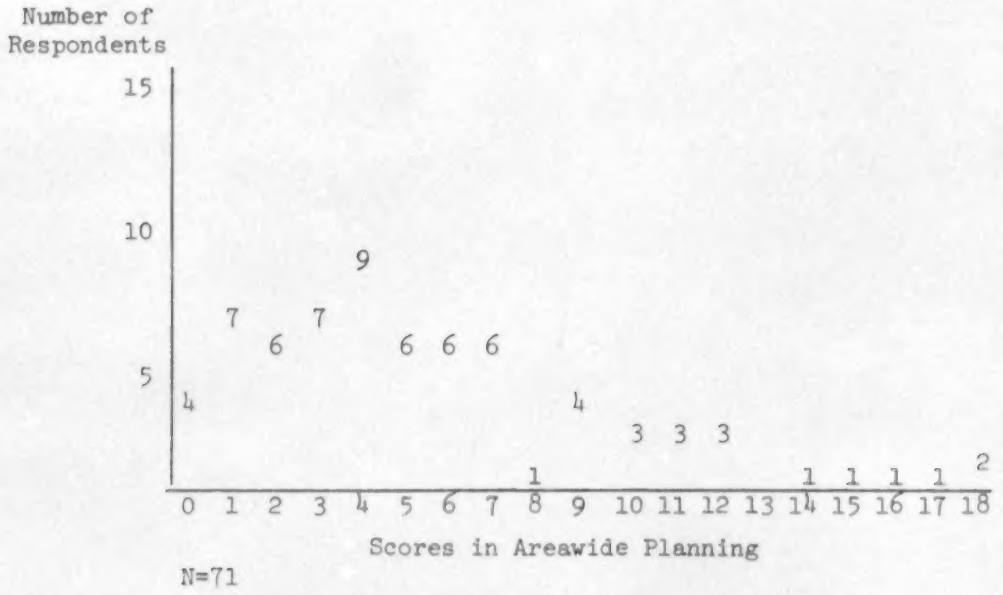
Table 1. Means and Ranges of Linkage Variables in Four County Area

Variable	Chemung Co. Mean	Chemung Co. Range	Schuyler Co. Mean	Schuyler Co. Range	Steuben Co. Mean	Steuben Co. Range	Tioga Co. Mean	Tioga Co. Range	Four County Area Mean	Four County Area Range
Number of Vertical (Extra-County) Linkages Reported	3.6	0-9	1.7	0-6	4.1	0-14	1.2	0-5	2.76	0-14
Number of Horizontal (Intra-County) Linkages Reported	4.1	0-9	2.5	0-10	3.4	0-8	2.8	0-8	3.23	0-10
Proportion of all Vertical Linkages Reported by Actor	.13	.00 to .43	.12	.00 to .43	.12	.00 to .41	.09	.00 to .38	.12	.00-.43
Proportion of all Horizontal Linkages Reported by Actor	.13	.00 to .32	.14	.00 to .56	.12	.00 to .30	.17	.00 to .47	.14	.00-.56
Number of observations	19		15		20		17		71	

is apparent that vertical and horizontal interactions do not measure the same aspect of the communication network used by planners and decision makers. Therefore both were used to form an operational definition of area-wide planning. Since the relationship between the number of linkages and almost all indicators of comprehensiveness was stronger than that involving the ratio of linkages, the measure of area-wide planning that was used was the sum of vertical and horizontal linkages reported by a planning actor. The distribution of scores on area-wide planning appears in Figure 2. The mean score is 5.986. The distribution is skewed to the left, with a wide range of scores above the mean.

From this tabulation it is evident that the organizations involved in planning in the four county area of the study were not well connected to other actors. If learning is heavily dependent on inter-organizational relationships as communication linkages, these counties would appear to be in trouble.

Figure 2. Distribution of Planning Actors' Scores on Areawide Planning, Four-County Area



The Comprehensive Dimension of a Planning/Learning Ideal

Comprehensiveness was the second major dimension of a planning/learning ideal with which this study was concerned. Flood management is unquestionably a complex problem, involving as it does implications for individual safety and well-being, community land use patterns, economic development, the design of physical structures, etc. Logically, it is appropriately a concern of social, economic, and physical planning, overlapping these three traditional areas of planning and legitimately requiring a comprehensive perspective.[8]

Planning has many facets; those included in this investigation (Figure 3) were indicators of the informants' perception of scope, complexity, interdependencies,--in short, ecological awareness.

Figure 3. Mapping Sentence[9] Describing Comprehensive Planning.

Actor (A)		Planning Area (B)		Extent of FMP involvement (C)		FMP Option (D)
	is engaged in	Social (S) Economic (E) Physical (P) S/E E/P P/S S/E/P	and is involved in FMP	none present only potential only present and potential	with interest in	I II III I & II I & III II & III All

	Issues/problems (E)
perceiving	0 none 1 simple problem only; uni-dimensional 2 problems only; multi-dimensional 3 issues perceived--interdependency

Planning Area: Economic, physical, and social planning are areas of planning which all of the actors interviewed understood, and in which they could indicate their involvement. The comprehensiveness of planning by each actor was operationalized as the number of these areas in which the informant perceived the organization to be involved. The greater the number of areas, the more comprehensive the scope of that organization's general planning activities. If the actor (in this case usually a decision maker) reported that he was not involved in planning, that was scored 0. A single focus in planning, i.e. in a social, economic, or physical planning area only, was scored 1. Involvement in any two of these planning areas was scored 2, and engagement in all three areas was scored 3.

Flood Management Planning: The planning actors interviewed in this investigation were all considered to have a legitimate, even vital interest in the process or outcomes of flood management planning. While not all of the actors listed were known to be required to participate actively in flood management planning, there was an a priori assumption on the part of the investigators that such participation would have a pay-off for each actor. Each actor interviewed was asked whether the agency had been/was currently involved in FMP, and whether they anticipated future involvement in FMP.

For this indicator of comprehensiveness, an agency was assigned 1 if the actor perceived that it had been, was, or would be involved in FMP, and 0 if none of these conditions were perceived.

Flood Management Options: Perception of actual or potential involvement in FMP was a third indicator of planning comprehensiveness. In order to give some examples of ways in which planning actors might be involved a brief statement of three general strategies for FMP was read. The three strategies are the following:

Option I -- The Structural Approach:

> The development of physical (structural) measures (e.g. dams, levees, upstream channel clearance, slope treatment) for the impoundment, absorption, and/or channeling of water that would prevent some proportion of high water occurrences from becoming floods;

Option II -- The Land Use Approach:

> The development of land use practices and controls (e.g. zoning homes and business out of flood plain areas, use of flood plains for recreation and conservation purposes, establishment of "flood-proof" building codes) that would reduce the cost of replacing structures and development at risk in the flood plain areas;

Option III -- The Disaster Preparedness Approach:

> The development of emergency and disaster measures (e.g. early warning systems, evacuation and rescue procedures, coordination of relief efforts, provision of recovery funds) that would prevent loss of life and provide optimal assistance to those persons directly affected by a flood.

Informants were asked in which of these three (if any) or in what combination of options their organizations had involvement and/or interest. This served two purposes--to elicit further responses regarding actual or potential engagement in FMP, and to indicate the agency's perception of the interdependencies of the

options described. Interviewers were instructed to encourage respondents to define optional flood management strategies in their own way, as a means of further distinguishing the agency's awareness of inter-option contingencies. No new options were suggested by the planning actors.

Interest in the three general strategies for coping with floods was scored similarly to involvement in planning, with 0 for no interest in any flood management option, 1 for interest in only one of the three options, 2 for interest in any two options, and 3 for interest in all three.

Awareness of Issues and Problems related to Flood Management Planning: A final means of getting at planning actors' awareness of complexity and contingency in flood management planning was asking them what problems or issues they perceived or felt should be addressed re FMP. It is conceivable that involvement and understanding are not correlated; this inquiry was designed to supplement the information about involvement as discussed above.

The informants' answers were categorized as perceptions of problems or issues or both. "Problems" were statements, in uni-dimensional terms, of difficulties perceived by the actor, (e.g. people forgetting the flood), which implied a generally acceptable solution. "Issues" were reports of multi-dimensional problems in which a trade-off of outcomes was involved. For example, the control of land use in the flood plain was perceived as highly desirable in order to reduce the risk involved from flooding; at the same time it was recognized as unfeasible because any limitation on development of the flood plain, given the unsuitability of adjacent hillside for development purposes, would impinge on the economic well-being of the community. There is no entirely satisfactory solution to the trade-off between economic disaster resulting from flood loss and that resulting from tax base loss.

An indicator of awareness was created by assigning 0 if the respondent indicated that he was not aware of any problem or issues. If a single problem were mentioned,

the actor was scored 1. Mention of multiple problems was scored 2, and articulation of one or more issues was scored 3.

The relationships among these variables, indicated by correlation coefficients, is displayed in Table 2. It is apparent that involvement in flood management planning is correlated with interest in multiple options for flood management and with a

Table 2. Relationships Among Indicators of Comprehensive Planning

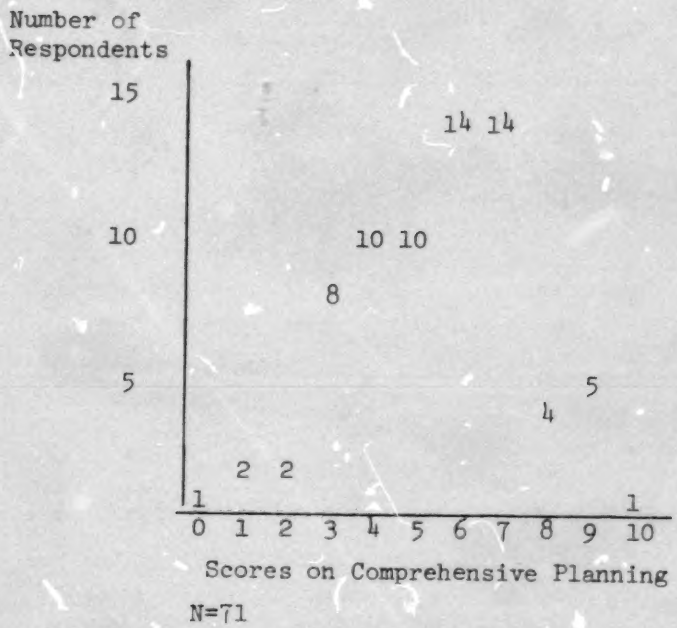
	Involvement in FMP	Scope of Planning	Interest in FMP Options
Scope of Planning	.1728		
Interest in FMP Options	.4835*	.2773*	
Awareness of Problems	.2081*	.1439	.2683*

N=71 *Level of significance is less than .05.

more comprehensive awareness of the problems and issues related to flood management planning. There is also a significant relationship between interest in multiple options and comprehensiveness both of planning activities and of awareness of problems and issues.

The measure of comprehensiveness that was adopted was a summation of the actor's scores on each of these four indicators. The distribution of scores for comprehensive planning is shown in Figure 4. The mean score is 5.479, with the distribution skewed only slightly to the right.

Figure 4. Distribution of Planning Actors' Scores on Comprehensive Planning, Four County Area



Ideally, each planning actor should have achieved a score of 10 on this index of comprehensiveness. It is apparent, as in the case of the area-wide dimension, that these counties have plenty of room for growth toward a planning/learning ideal.

Relationship Between Area-Wide and Comprehensive Dimensions

It was assumed in the conceptualization of the problem which this study addressed that "area-wide" and "comprehensive" were mutually supportive descriptors of an emerging planning/learning ideal. That is, if planning actors were connected to a well-developed communication network and therefore scored high on the area-wide dimension, the probability of their being comprehensive (i.e. perceiving planning as a broad-scope arena) would be enhanced. Conversely, planning actors who perceived their mission broadly, and therefore scored high on the comprehensive dimension, would be more likely to establish numerous linkages in order to carry out their responsibilities.

The coefficient of correlation between area-wide and comprehensive for all 71 actors was .4795, a strong but by no means perfectly consistent relationship. This was a stronger relationship, however, than any between pairs of individual indicators of comprehensive and area-wide planning (Table 3). It is apparent that vertical and horizontal linkages are related differently to comprehensiveness. In general, it appears that the more areas of planning an actor is involved in, the more vertical

Table 3. Relationships Between Indicators of Comprehensive and Area-wide Planning

Areawide	Scope of Planning	Interest in FMP Options	Awareness of Problems	Involvement in FMP
Number of Vertical Linkages	.3041	.2360	.1726	.2619
Number of Horizontal Linkages	.0909	.2936	.3610	.2904

N=71

linkages are present. This aspect of comprehensiveness in planning is not significantly related to the number of horizontal linkages. Horizontal linkages, however, and not vertical linkages, are related to awareness of problems and issues. In general, the more connections to agencies within the community (horizontal linkages), the larger the actor's score on this aspect of comprehensiveness.

The Influence of Organizational Characteristics on Planning/Learning Dimensions

One possible influence on the relationship between these two attributes of a planning ideal is the constraint on planning activities imposed by the nature and mission of the organization. Each county's Department of Social Services, for example, is required by state mandate to prepare a plan for handling emergencies or disasters in the county. It could be anticipated that these planning actors would

have interest in Option III (disaster preparedness and relief). They are also required to coordinate disaster planning with the local office of civil defense. These are just two constraints on a highly complex organization. Every other organization can be expected to be subject to constraints, albeit different ones.

The 71 agencies included in the study represented 16 categories of organizations, from Departments of Social Services to Farmers Home Administration. Table 4 arrays each category by its ranking on mean score for the two attributes of the planning/learning ideal.

Table 4. Ranking of Agencies on Attributes of Planning Ideal

Planning Attributes	DSS	CAP	HSP	CD	UR/UDC	C of C	Cons.	ASCS	CE	SCS	C.Pl.	To.Sup.	Co.Pl.Bd.	SWCD	Ind.	FHA
Area-wide Ranking	9	3	10	12	5	7	1	15	6	2	4	16	13	8	11	14
Comprehensive Ranking	10	7	12	9	2	13	5.5	11	3	8	1	15.5	4	5.5	14	15.5

Recognizing that the relationship between the two attributes of a planning ideal is not perfectly consistent, a simple summation of the two indices does not seem appropriate for describing the planning actors in the four counties. It was decided, therefore, to consider "comprehensive" and "area-wide" as the two dimensions of a four-cell matrix (Table 5) in which 'high' represents any score above the mean and 'low' any score below. The resulting typology permits identification of four types of planning actors.

Table 5. Typology Based on Two-Dimensional Planning Ideal

		Comprehensive: Low	Comprehensive: High
Area-Wide	Low	Type I Isolated, Limited interest	Type II Isolated, Broad interest
	High	Type III Interconnected, Limited interest	Type IV Interconnected, Broad interest

Type I interacts with relatively few other actors and has a very limited interest in planning activities. Type II, while it has relatively few contacts with other actors, has a broad interest in planning activities. The Type III actor, while having many contacts, has a limited focus. Type IV is characterized by giving its attention to a wide span of concerns and by maintaining a broad communication network.

The argument has been made by some professional planners that the probable costs in terms of time spent on communication with local actors are greater than the possible benefits of better-informed local planners and decision-makers, especially when there is resistance from locals toward having their view of the world broadened. In terms of efficiency (benefit/cost ratio), according to this view, educating local planning actors is a poor strategy. This assumes, however, that the purpose of communication is to shape up the locals to accept the judgment of experts who are frequently located at another level in the vertical linkage pattern. This implies a top-down one-way information flow, with goodness and wisdom filtering downward from on high.

The argument of this paper is rather different. It is assumed that wisdom related to what will benefit the local community is most likely to be located at the local level. Local planning actors are presumed to be in touch with local sentiment; it is not only their prerogative but also their responsibility to articulate the demands of their fellow community members. If there are few horizontal linkages reported by local planning actors that would seem to indicate that little communication has developed within the community to clarify what is at stake and to identify who benefits and who loses from alternative options. The relationship between awareness of problems and issues and of horizontal linkages is supported by the data in this study. Ignoring a potential planning or decision situation as long as possible with the hopes of letting sleeping sentiments lie is not a strategy designed to serve the best interests of local residents. On the contrary, it may invite disdain for local ability from actors at higher levels of planning and decision-making. A low opinion

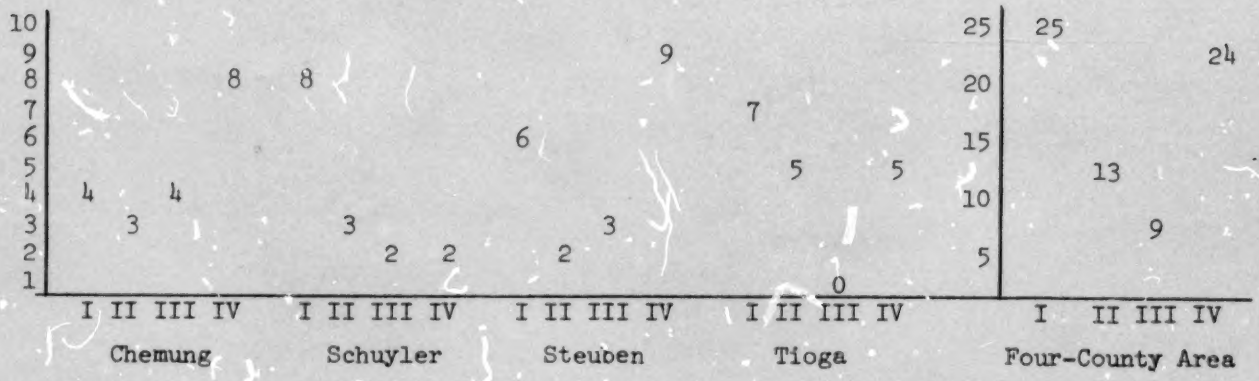
of local ability may serve to justify the imposition of decisions from a higher and supposedly more expert level.

Vertical linkages are by no means necessarily limited to channels for receiving rules and regulations. On the contrary, they represent one of the more powerful means by which the demands of the local community may be transmitted to planners and decision-makers at higher levels. The articulation of demand with no way to channel it to a level where it will influence other planning and decision-making is like being all dressed up with no place to go. The alternative means for influencing the way the game is played, e.g. voting in a referendum or election of representatives, or moving to a different community, are seldom as direct and timely as lobbying or negotiation. The more comprehensive the scope of planning, the more vertical linkages are involved. This relationship was demonstrated in the study.

Whether there is a probability of diminishing returns for increasing indefinitely the scope of the local planning actors' communication network and awareness of the interrelatedness of the multiple aspects of planning is an academic question. Emphasis is placed here on the fact that good has not yet been achieved by all planning agents.

A summary of the number of each planning type for each of the four counties and the region as a whole appears in Figure 5. It is obvious that the distribution of planning types is not the same in each county. Chemung County is heavily endowed with Type IV actors, as is Steuben County. Considering that these are the two more urban counties, it is not surprising, perhaps, to find more professional planning actors there than in the two more rural counties. While Schuyler and Tioga both have more Type I actors than any other type, Schuyler is way below the overall pattern in Type IV agencies and has more than its share of Type I agencies. Chemung County is just the opposite, have relatively few Type I and a good share of Type IV agencies.

Figure 5. Profiles of Planning Typology in Four Counties.



Descriptions of the four counties reveal that there are distinctive differences among them. No universal patterns of relationships appear; in the two counties most severely affected by Agnes (Steuben and Chemung), the salience of disaster was mitigated in one by the limited area of the county that was worst hit. In the two counties that experienced less severe damage, other experiences (e.g. the annual occurrence of the Grand Prix in Schuyler county) influenced the awareness of planning actors. Three counties employed professional planners; the influence of these actors could not be discerned as being similar across any or all of the three. The most urban county (Chemung) evidenced the most consensus and comprehensiveness in awareness related to flood management planning. The relationship between urbanization and awareness is not consistent as one looks at the other three. The most urban county, it should be noted, was also the hardest hit victim of Agnes. Urbanization does seem to be related to the density of the communication network, with the more urban areas reporting the most co-actors in planning activities.

The conceptualization of a planning/learning system developed for this exploratory study led to a typology of planning actors. The following discussion of the four types focuses on characteristics of organizations as environments for planning/learning.

Type I: This organization scored below the mean on both the comprehensive and area-wide dimensions of planning. In this study the agencies falling into type I seem to be organizations with responsibility for decision-making or policy implementation that theoretically involves an ability to analyze, interpret, and request planning activities, if not to undertake planning directly. The individuals who make up these organizations, however, are not selected on the basis of planning competency or subject matter expertise, but on popular appeal or longevity in the system. It would appear that there is a major discrepancy between expectations for ideal planning and decision-making behavior and the expectations for Type I planning actors. It is not enough to say that the public needs to be educated to expect different behavior, and to pay for it. Neither is it sufficient to say that Type I agencies need to be educated to assume a different role and to lobby for its acceptance. If the local elected official is a frequently encountered example of the Type I actor the introduction of a demand for sophistication in planning behavior may be antithetical to the requirements for political survival. Instead of being a passive, pass-the-buck-to-the-planning-board observer of activities, the local official would be called on to assume a leadership role in planning-related activities, initiating opportunities for the surfacing of controversy, making himself vulnerable to attack from numerous interest groups. The remuneration that presently accompanies local office is seldom sufficient motivation for an individual's choosing to invite more attacks than necessary. Without a well-developed set of peer expectations or a demand for accountability from constituents, it seems unlikely that a call for greater planning efficacy will be heeded.

For other Type I actors, however, the constraints appear to be not political but bureaucratic. The local offices of the Farmers Home Administration, for example, since they lend money to victims of floods, might be expected to be active participants in flood management planning related to the prevention of floods, the decrease

of flood losses, and/or disaster preparedness and relief. This did not happen in the counties of this study, apparently because the role of the agency was perceived to be heavily proscribed and limited by the larger organization of which the local office was a part. Here, indeed, vertical communication linkages did seem to operate as the channels through which directives flowed downward. Penalties for failure to comply were, presumably, perceived to be not trivial. Ironically, though, there seemed to be no particular interest in becoming more involved either in general planning or flood management planning. There was very little awareness of the problems related to flood management planning, even though these actors had direct and frequent contact with the victims of flooding.

In this case, as with local elected officials, change can not be anticipated on the basis of a unilateral shift in expectations. The administration at the top level of the organization, the policy-makers at a number of levels, the potential consumer population, and the local bureaucrat will all need to be involved in the development of new expectations for local activity in planning. This will mean a considerable educational effort at all levels. Education alone, however, is not sufficient; change will require a concomitant shift in motivating factors for all involved.

Type II: This organization scored below the mean on the area-wide dimension but above the mean on comprehensiveness. In this study the agencies in Type II tend to be lay groups with planning responsibilities that are carried out in large part by professional staff. That is not to say that the agency is not involved in planning; rather, much of its information-gathering work is performed by professionally trained staff. The personnel of the Type II agency appear to be selected for interest and experience in the particular area in which planning is focused. Thus individual members of the Soil and Water Conservation District Boards are selected because they know and care about the natural resources of the area.

Type II does not seem to be problematic, in that its understanding of what is involved in planning is comprehensive even though it personally does not maintain a wide linkage system. As long as there is an external professional staff resource that performs the linking function, communicating information to and from the Type II actor, this seems to be an efficient means of operating. That is, the actor tends to be broadly aware of what is involved in planning but does not need to expend a large amount of energy in directly manning the communication lines. The question may be asked, then, if this planning actor really exerts influence on other levels of decision-makers--if the demand that is articulated by the group actually finds its way to appropriate decision-making locations. It is possible that the Type II agency's influence goes no further than the professional staff, where it may or may not be heeded. If this is the case, then efficiency is gained at the expense of effectiveness, an unsatisfactory tradeoff.

One wonders why this model might not be an alternative to Type I, especially when the Type I agency seems to have professional resources potentially available to it. It has been suggested that planning bodies may be viewed by local elected officials as a diversion channel to which problematic matters may be referred, thus taking the heat off the decision-making body. That use of a planning actor is not designed to increase communication from the planner to the decision-maker. Before a Type I agency could be converted to a Type II agency, an interest in becoming actively involved in planning or planning-related activities would have to be fostered.

Type III: This organization scored below the mean on comprehensiveness, but above the mean on the area-wide dimension. In this study a variety of agencies fell into Type III. The only central tendency that characterized them is an apparently purposeful effort to limit the scope of their planning activities, evidently in the belief that a more comprehensive view would not be justified nor possible given their limited resources. Included in this notion of resources is their own interest, previous experience, and sense of agency purpose. Type III is particularly troublesome

because it appears that the decision to limit comprehensiveness is made in the absence of knowledge as to what might be, rather than resulting from a calculated analysis of all possible alternatives. Among the Type III human service planners, for instance, there was a considerable naivete and lack of conviction as to what their role was or might become. These groups are relatively young, and may develop more comprehension and comprehensiveness as they gain experience. In other cases, however, there was a kind of closed-mindedness that is disconcerting, to say the least. It does not appear that the contacts of the Type III agencies are limited to a narrow set of co-actors; the fact that they maintain a greater than average number of linkages puts them easily in touch with information sources both within and outside the county. The fact that Tioga County has no Type III actors suggests that this planning type serves no essential function on the local scene. It may be that the Type III agency is a strategic target for intervention activities designed to upgrade the state of planning/learning in a county or region. Because it is widely connected, it might very well have a multiplier effect both through its communications and its effect as a model.

Type IV: This organization scored above the mean on both dimensions of the planning/learning ideal. In this study it tends to be characterized by professionally trained staff and/or an active commitment to the efficacy of planning. It should be noted that while a community's fiscal ability to support professional planners appears to be an important factor associated with the number of Type IV agencies in a county, even a less wealthy county (such as Tioga) can apparently nurture a fair proportion of actors in this category. Presumably it takes more than good salaries; some sense of community mission or common problem may be associated as a moral support for planning activities.

While a third of the planning actors in the four-county area fell in the Type IV category, this does not mean that they have achieved an optimal status in relation to

the posited planning/learning ideal. There is no reason not to believe that more continues to be better, both in the comprehensiveness with which planning actors perceive their work and in the extent and articulation of their communication linkages. The complexity of the natural and social environment in which we live and the ever-changing nature of our relationship to that environment create a condition in which planners, like Alice and the Red Queen, have to run to stand still.

This typology was not intended to applaud one group of agencies and cast aspersions on another. Its merit, if any, lies in identifying characteristics of organizations associated with a relative position on each of two planning dimensions. If these organizational characteristics are basically incongruent or, worse, dysfunctional in relation to movement toward a planning/learning ideal, then some redesign of organizations and inter-organizational networks may be necessary. The conclusion offered here is that both Type II and Type IV are viable models for planning/learning in an "active society". Neither Type III nor Type I is conducive to planning/learning activities, although a shift for Type I organizations may be an extremely uncomfortable one.

Conclusions

This study set out to map the planning activities in four New York State counties hit by Tropical Storm Agnes in June, 1972, specifically in relation to flood management. The complexity of flood risk management has been cited as a necessary and sufficient condition justifying the need for systemic planning/learning.

The methodology developed for the study was based on the assumptions that planning and learning are symbiotic activities, and that area-wide and comprehensive planning by definition and design describes a learning system. That is, comprehensive planning was defined as planning in which learning has occurred. More than that, however, comprehensive and area-wide planning is designed, by virtue of its communication channels providing access to information and of its ecological perspective, to foster learning.

Use of the study results to predict the capability of these four counties to engage in flood management planning would lead one to conclude that there might not be startling results. As a matter of fact, little work has been done in any of the counties to improve or update their plans for disaster preparedness since the 1972 floods, with the exception of Schuyler County's preparation for the unnatural disaster of Summer Jam in 1973. By the deadline (July 1, 1975) for federal flood insurance eligibility, not all townships and villages designated as flood prone areas had tendered their letters of intent to comply, let alone developed comprehensive plans of flood risk management. It would appear that the mapping technique has some predictive value.

More important to the change agent or community educator, however, is a tool that will assist in the development of strategies for promoting planning/learning activities. The mapping survey designed for this study has the following advantages to recommend it:

1) it is not limited to flood management planning, but may be adapted for use with many other community concerns;
2) it can easily be used by a person who is not familiar with the community;
3) it provides an efficient learning experience for the interviewer;
4) it clearly points out the strengths and weaknesses of the community's understanding of the topic;
5) it helps to locate these strengths and weaknesses on a communication network, thus identifying 'hot spots' where misinformation is likely to spread, or 'cold spots' where important understandings are likely to be locked up;
6) it sensitizes the respondents to the particular concern and creates recognition for the interviewer at the same time information is being gathered;
7) it explores not only technical aspects of learning content but also the awareness of a community as to the differential social and economic impacts

of problems and solution alternatives being considered;

8) it identifies planning actors whose communication linkages with other organizations are relatively well-developed and may be used in an educational effort; and

9) it points out areas in which it may be highly advantageous to develop communication linkages.

Other conclusions, in the nature of hypotheses or guides for further work, may also be drawn from this exploratory study:

1) The presence of horizontal communication linkages increases the likelihood of learning about the existence and interrelatedness of problems and preferences within the local area.

2) The presence of vertical communication linkages increases the likelihood of openness to a broader scope of learning and planning, and appreciation of relatedness between one focus of planning/learning and another.

3) Each area develops a unique pattern of inter-organizational relationships, reflecting its unique combination of historic, social, political, and economic experience.

4) Comprehensiveness of planning/learning can be achieved by lay participants without broad linkage to other actors if they are linked to one or more professional planning/learning organizations.

5) Organizations with regional responsibilities for planning/learning are at least as influential in fostering local area-wide comprehensive planning/learning systems as are local professional planning organizations.

6) Bureaucratic and political barriers may prevent area-wide comprehensive planning/learning in circumstances that would otherwise appear to promote such activity.

FOOTNOTES

1. Michaels, D., ON LEARNING TO PLAN - AND PLANNING TO LEARN. San Francisco: Jossey-Bass, 1973.

2. Schon, D., BEYOND THE STABLE STATE. New York: Norton, 1971, p30.

3. See, for example, Hardin, G., EXPLORING NEW ETHICS FOR SURVIVAL. New York: Viking, 1972.

4. Bauer, K.W. "Recommended Floodland Management Initiatives at the Interstate Level". Paper presented at the National Conference on Flood Plain Management, Washington, D.C., July, 1974.

5. See Dahl, Robert A. WHO GOVERNS? New Haven: Yale University Press, 1961 and Hunter, Floyd, COMMUNITY POWER STRUCTURE. Chapel Hill, N.C.: University of North Carolina Press, 1953.

6. Warren, Roland. THE COMMUNITY IN AMERICA. Chicago: Rand McNally, 1971 (1942, 2nd edition).

7. All statistical procedures were carried out using The Statistical Package for the Social Sciences (SPSS).

8. For a fuller treatment of the complexity of flood management planning see Wright, J., "Inundation by Complexity--Flood Management Planning", Cornell University, (mimeo), 1974.

9. This terminology is derived from Guttman's facet theory. Guttman, L., "The Facet Approach to Theory Development", Israel Institute of Applied Social Research, mimeographed, 1970; "The concept of a Common Range: Four Applications and Four Fallacies", mimeographed, 1972; Ben-Sira, A. and L. Guttman, "A Facet-Theoretical Approach to Research". Final Report, Grant No. 1A-1631-472, U.S. Information Service, Israel Institute of Applied Social Research, Publication No. ZBS/269/RCE), July, 1971.